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United States  
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# Idaho Basin Outlook Report January 1, 1998

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# Basin Outlook Reports

## and

## Federal - State - Private

## Cooperative Snow Surveys

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*For more water supply and resource management information, contact:*

**Your local Natural Resources Conservation Service Office**

**or**

**Natural Resources Conservation Service**

**Snow Surveys**

**3244 Elder Street, Room 124**

**Boise, ID 83705-4711**

**(208) 378-5740**

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### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# *IDAHO WATER SUPPLY OUTLOOK REPORT*

*JANUARY 1, 1998*

## *SUMMARY*

Winter snows arrived late in Idaho this fall after last year's record snow levels finally melted in June and July. The 1998 water year started with the entire state receiving one to two times the normal October precipitation. Then, in November and December the drying trend started. As a result, snow water content levels are below normal across the entire state as well as streamflow forecasts. On a positive note, last year's high runoff left Idaho reservoirs with good carryover storage which will help buffer impacts of the low streamflows. Water supplies should be adequate for most reservoir water users with the possible exception in the Wood and Lost river basins where supplies may be marginal due to very low streamflow forecasts. Natural streamflow or in-stream water users may also experience low volumes if the dry conditions continue.

## *SNOWPACK*

Idaho's seasonal snowpack got off to one of the slowest starts in years. In early December, several central mountain snow measuring stations had the least amount of snow water since daily records started in the early 1980s. Currently, snowpacks are 50-70% of average across the entire state which is about one-third of last year's snowpack. The Clearwater basin has the highest percentage in the state at 73% of average. The lowest snowpacks are about half of normal in the central Idaho mountains. These mountains are the headwaters and snowmelt source for the Boise, Big Wood and Middle Fork Salmon rivers. Snowfall since January 1 has helped, but much more is needed to overcome these deficits. With more than half the snow season still to come, conditions could change depending on what El Nino and Mother Nature have in store for Idaho.

## *PRECIPITATION*

Water year 1998 started with the entire state receiving 110-200% of average precipitation in October. November brought warm and dry weather; precipitation was half to three-quarters of normal across the state. In December the drying trend continued. Monthly precipitation was even less, ranging from 27% of average in the Wood and Lost basins to 57% in the Clearwater basin. Water year to date precipitation (October 1 to present) is the highest in the Clearwater basin (85% of average) and decreases to about 55% of average across the southern Idaho basins. The January-March outlook from the National Weather Service calls for below normal precipitation and above normal temperatures for the northern half of Idaho.



## ***RESERVOIRS***

Good carryover storage will help provide the saving grace for Idaho's agricultural water supply this year. Nearly all Idaho reservoirs are reporting above average storage and are half to three-quarters full as a result of last summer's high runoff and sustained baseflows. The combined reservoir storage for the eight upper Snake basin reservoirs, the Payette system, and Bear Lake are each about 78% of capacity. The Boise system and Magic Reservoir are about 70% of capacity while Salmon Falls, Oakley and Mackay reservoirs are 40-55% full. This storage will help buffer the low streamflow amounts if the dry spell continues.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive, and in some cases dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

## ***STREAMFLOW***

Last year's high snowpack and high runoff sustained streamflow levels well into the fall. October streamflows were 120-140% of average for most Idaho streams. November flows ranged from 90% of average in the Payette basin to 150% of average in the Clearwater basin. After consecutive dry months, December flows ranged from 80-110% of average -- the first time in months that volumes were below average. In early fall some eastern Idaho streams were still at near record high levels for that time of year. These good baseflows will help provide additional water for this coming season. Streamflow forecasts are below normal across the state and range from 60-80% of average for most streams. The lowest forecasts are 40-50% of average in the Big Wood and Owyhee basins. Additional El Nino/Southern Oscillation Index information and its correlation with spring/summer streamflow is available on our Internet page: <http://idsnow.id.nrcs.usda.gov/>

## ***WATER SUPPLY FORECASTING PRODUCTS ON THE INTERNET***

Water Supply Forecasting products are now available on the INTERNET. These products include the SNOTEL Update Reports, State Basin Outlook Reports, and products previously published in the Water Supply Outlook for the Western United States.

The Universal Resource Locator (URL) for our home page is: <http://id.nrcs.usda.gov>  
You can access the Anonymous FTP server by pointing your INTERNET browser (Netscape, Mosaic, etc.) to: <ftp://ftp.wcc.nrcs.usda.gov>

We will continue to add more products to our Home Page and Anonymous FTP server and welcome any comments and suggestions you might have. Questions and comments should be directed to the NRCS Snow Survey.

Natural Resources Conservation Service  
Snow Survey Staff  
3244 Elder Street, Room 124  
Boise, Idaho 83705-4711  
Phone (208) 378-5740  
Email [snow@id.nrcs.usda.gov](mailto:snow@id.nrcs.usda.gov)

# IDAHO SURFACE WATER SUPPLY INDEX (SWSI)

As of January 1, 1998

The surface water supply index (swsi) is predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences.

SWSI values are published January through May, and provide a more comprehensive outlook of water availability than either streamflow forecasts or reservoir storage figures alone. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been established for most basins to indicate the potential for agricultural water shortages.

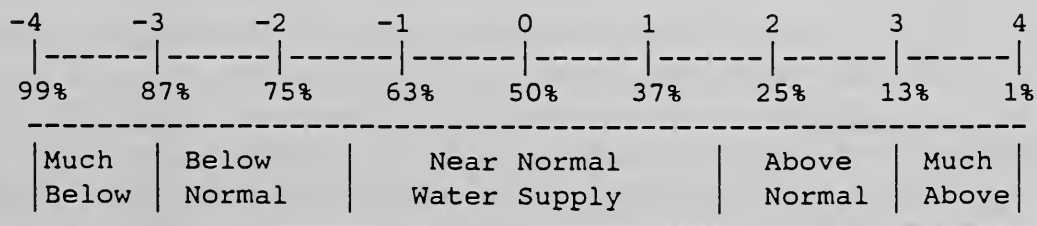
The following agencies and cooperators provide assistance in the preparation of the Surface Water Supply Index for Idaho:

US Department of Commerce, National Weather Service  
US Bureau of Reclamation  
Idaho Water Users Association

US Army Corps of Engineers  
Idaho Department of Water Resources  
PacifiCorp

| <i>BASIN or REGION</i> | <i>SWSI Value</i> | <i>Most Recent Year With Similar SWSI Value</i> | <i>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</i> |
|------------------------|-------------------|---|--|
| PANHANDLE              | -2.6              | 1988  | NA   |
| CLEARWATER             | 0.7               | 1990  | NA   |
| SALMON                 | -0.9              | 1981  | NA   |
| WEISER                 | -1.5              | 1985  | NA   |
| PAYETTE                | -0.6              | 1985  | NA   |
| BOISE                  | -0.5              | 1993  | -2.6   |
| BIG WOOD               | -1.3              | 1981  | -1.4   |
| LITTLE WOOD            | -0.2              | 1985  | -2.1   |
| BIG LOST               | -1.2              | 1979  | -0.8   |
| LITTLE LOST            | -0.7              | 1990  | 0.0  |
| HENRYS FORK            | -1.2              | 1981  | -3.3   |
| SNAKE (AMERICAN FALLS) | 0.8               | 1985  | -2.0   |
| OAKLEY                 | 1.6               | 1979  | 0.0  |
| SALMON FALLS           | 1.9               | 1982  | 0.0  |
| BRUNEAU                | -1.8              | 1991  | NA   |
| OWYHEE                 | -0.3              | 1994  | NA   |
| BEAR RIVER             | -0.8              | 1988  | -3.8   |

## SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION



Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply", represents three SWSI units and would be expected to occur about one third (36%) of the time.

# BASIN - WIDE SNOWPACK SUMMARY

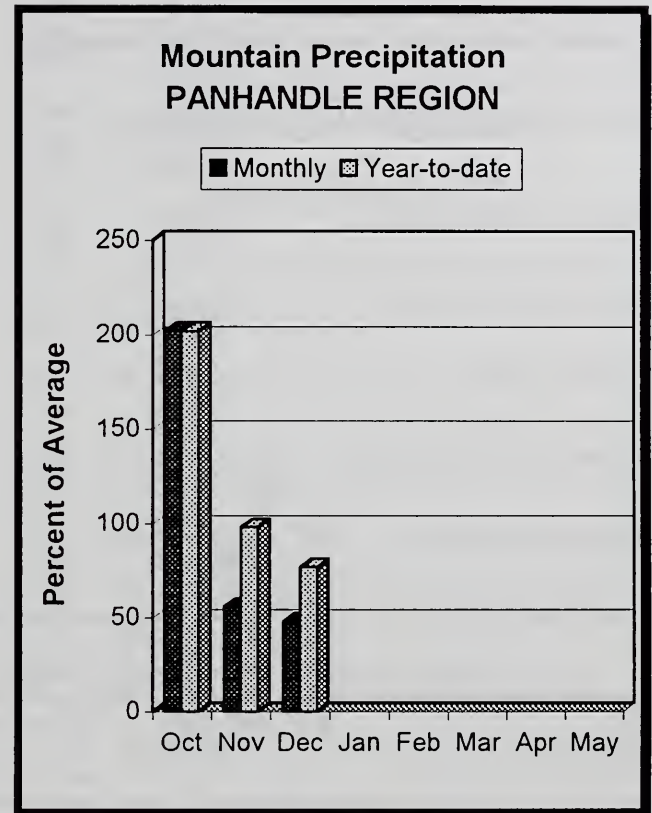
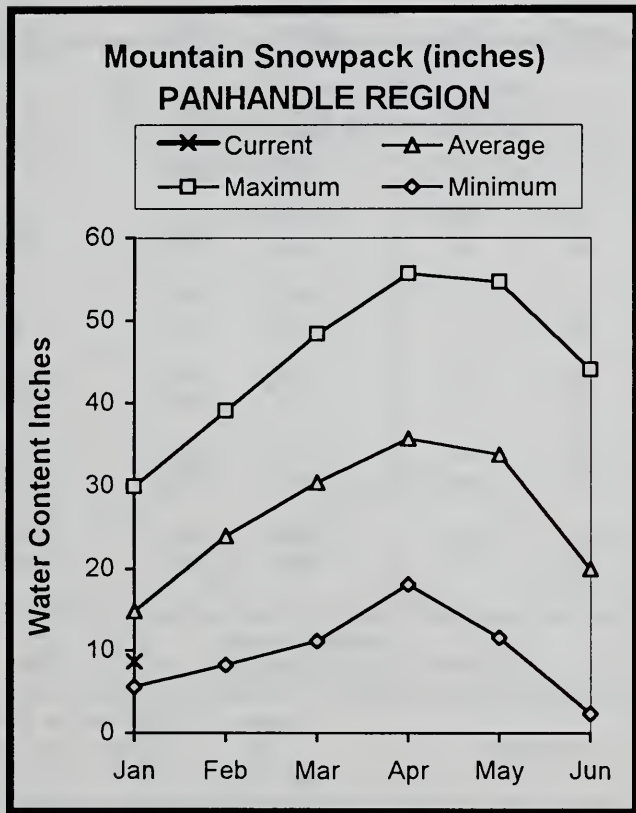
JANUARY 1998

| BASIN                           | PERCENT OF<br>LAST YEAR | PERCENT OF<br>AVERAGE |
|---------------------------------|-------------------------|-----------------------|
| *****                           |                         |                       |
| Kootenai ab Bonners Ferry       | 40%                     | 63%                   |
| Moyie River                     | 27%                     | 54%                   |
| Priest River                    | 30%                     | 69%                   |
| Pend Oreille River              | 34%                     | 68%                   |
| Rathdrum Creek                  | 30%                     | 71%                   |
| Hayden Lake                     | 0%                      | 0%                    |
| Coeur d'Alene River             | 22%                     | 47%                   |
| St. Joe River                   | 30%                     | 61%                   |
| Spokane River                   | 26%                     | 56%                   |
| Palouse River                   | 26%                     | 71%                   |
| North Fork Clearwater           | 33%                     | 67%                   |
| Lochsa River                    | 38%                     | 83%                   |
| Selway River                    | 43%                     | 86%                   |
| Clearwater Basin Total          | 36%                     | 73%                   |
| Salmon River ab Salmon          | 24%                     | 54%                   |
| Lemhi River                     | 44%                     | 72%                   |
| Middle Fork Salmon River        | 25%                     | 54%                   |
| South Fork Salmon River         | 30%                     | 65%                   |
| Little Salmon River             | 32%                     | 68%                   |
| Salmon Basin Total              | 32%                     | 65%                   |
| Mann Creek                      | 44%                     | 76%                   |
| Weiser River                    | 35%                     | 71%                   |
| North Fork Payette              | 34%                     | 71%                   |
| South Fork Payette              | 27%                     | 52%                   |
| Payette Basin Total             | 31%                     | 64%                   |
| Middle & North Fork Boise       | 24%                     | 54%                   |
| South Fork Boise River          | 25%                     | 53%                   |
| Mores Creek                     | 25%                     | 62%                   |
| Boise Basin Total               | 25%                     | 54%                   |
| Canyon Creek                    | 22%                     | 0%                    |
| Big Wood ab Magic               | 21%                     | 52%                   |
| Camas Creek                     | 25%                     | 49%                   |
| Big Wood Basin Total            | 23%                     | 52%                   |
| Little Wood River               | 21%                     | 49%                   |
| Fish Creek                      | 0%                      | 0%                    |
| Big Lost River                  | 22%                     | 61%                   |
| Little Lost River               | 26%                     | 51%                   |
| Birch-Medicine Lodge Creeks     | 35%                     | 70%                   |
| Camas-Beaver Creeks             | 27%                     | 45%                   |
| Henrys Fork-Falls River         | 32%                     | 72%                   |
| Teton River                     | 34%                     | 68%                   |
| Snake above Jackson Lake        | 36%                     | 75%                   |
| Gros Ventre River               | 33%                     | 63%                   |
| Hoback River                    | 22%                     | 51%                   |
| Greys River                     | 27%                     | 52%                   |
| Salt River                      | 31%                     | 64%                   |
| Snake above Palisades           | 32%                     | 67%                   |
| Willow Creek                    | 25%                     | 65%                   |
| Blackfoot River                 | 22%                     | 51%                   |
| Portneuf River                  | 30%                     | 68%                   |
| Snake abv American Falls Resv   | 31%                     | 66%                   |
| Raft River                      | 22%                     | 60%                   |
| Goose-Trapper Creeks            | 21%                     | 55%                   |
| Salmon Falls Creek              | 33%                     | 73%                   |
| Bruneau River                   | 35%                     | 70%                   |
| Owyhee Basin Total              | 25%                     | 47%                   |
| Smiths & Thomas Forks           | 26%                     | 64%                   |
| Bear River ab WY-ID line        | 31%                     | 61%                   |
| Montpelier Creek                | 25%                     | 43%                   |
| Mink Creek                      | 23%                     | 49%                   |
| Cub River                       | 27%                     | 71%                   |
| Bear River ab ID-UT line        | 29%                     | 60%                   |
| Malad River                     | 20%                     | 69%                   |
| Green River ab Warren Bridge    | 21%                     | 49%                   |
| Upper Green River (West Side)   | 26%                     | 52%                   |
| New Fork River                  | 29%                     | 64%                   |
| Big Sandy River/Eden Valley     | 31%                     | 63%                   |
| Green River above Fontenelle    | 24%                     | 53%                   |
| Hams Fork River                 | 27%                     | 58%                   |
| Green River above Flaming Gorge | 31%                     | 63%                   |



# PANHANDLE REGION

## JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

Mountain precipitation for water year 1998 was twice normal in October and dropped to only half of normal in November and December. Precipitation for the water year is 77% of average. Snowpacks in the Idaho Panhandle reflect the below normal precipitation which is typical of El Nino years in northern Idaho. Snowpacks range from 50% of average in the Moyie and Coeur d'Alene basins to 70% in the Priest and Pend Oreille basins. Snow water content levels are about one-third of last year's snow levels at this time. Storage in Coeur d'Alene Lake is 24% of its summer capacity level; Pend Oreille Lake is 57% full. Streamflow forecasts call for below normal spring and summer runoff in the 70-75% of average range. Water supplies should be adequate, but water users should monitor the weather as conditions may change.

PANHANDLE REGION  
Streamflow Forecasts - January 1, 1998

| Forecast Point                   | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |
|----------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
|                                  |                 | =====  |                 | Chance Of Exceeding *           |          | =====           |                 |                        |
|                                  |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| KOOTENAI at Leona (1,2)          | APR-JUN         | 2998   | 4306            | 4900                            | 86       | 5494            | 6802            | 5701                   |
|                                  | APR-JUL         | 3783   | 5411            | 6150                            | 85       | 6889            | 8517            | 7199                   |
|                                  | APR-SEP         | 4348   | 6220            | 7070                            | 85       | 7920            | 9792            | 8275                   |
| CLARK FK at Whitehorse Rpd (1,2) | APR-JUN         | 3395   | 6287            | 7600                            | 76       | 8913            | 11805           | 10050                  |
|                                  | APR-JUL         | 3809   | 7200            | 8740                            | 75       | 10280           | 13671           | 11730                  |
|                                  | APR-SEP         | 4193   | 7925            | 9620                            | 75       | 11315           | 15047           | 12910                  |
| PEND OREILLE Lake Inflow (1,2)   | APR-JUN         | 3459   | 6953            | 8540                            | 75       | 10127           | 13621           | 11390                  |
|                                  | APR-JUL         | 4417   | 8119            | 9800                            | 75       | 11481           | 15183           | 13150                  |
|                                  | APR-SEP         | 4813   | 8861            | 10700                           | 75       | 12539           | 16587           | 14370                  |
| PRIEST nr Priest River (1,2)     | APR-JUL         | 346  | 559             | 655                             | 81       | 751             | 964             | 814                    |
|                                  | APR-SEP         | 371  | 597             | 700                             | 81       | 803             | 1029            | 868                    |
| COEUR D'ALENE at Enaville        | APR-JUL         | 319  | 474             | 580                             | 75       | 686             | 841             | 770                    |
|                                  | APR-SEP         | 333  | 492             | 600                             | 74       | 708             | 867             | 809                    |
| ST.JOE at Calder                 | APR-JUL         | 561  | 742             | 865                             | 74       | 988             | 1169            | 1169                   |
|                                  | APR-SEP         | 604  | 789             | 915                             | 74       | 1041            | 1226            | 1237                   |
| SPOKANE near Post Falls (2)      | APR-JUL         | 1060   | 1527            | 1845                            | 70       | 2163            | 2630            | 2633                   |
|                                  | APR-SEP         | 1107   | 1585            | 1910                            | 70       | 2235            | 2713            | 2730                   |
| SPOKANE at Long Lake             | APR-JUL         | 1210   | 1696            | 2026                            | 69       | 2356            | 2842            | 2936                   |
|                                  | APR-SEP         | 1367   | 1871            | 2214                            | 70       | 2557            | 3061            | 3159                   |

| PANHANDLE REGION<br>Reservoir Storage (1000 AF) - End of December |                 |                        |           |        | PANHANDLE REGION<br>Watershed Snowpack Analysis - January 1, 1998 |                      |                   |         |
|---|-----------------|------------------------|-----------|--------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |        | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg    |   |                      | Last Yr           | Average |
| HUNGRY HORSE  | 3451.0          | 2579.0                 | 2388.0    | 2586.0 | Kootenai ab Bonners Ferry   | 11                   | 40                | 65      |
| FLATHEAD LAKE   | 1791.0          | 925.5                  | 1132.0    | 1305.0 | Moyie River   | 1                    | 30                | 46      |
| NOXON RAPIDS  | 335.0           | 327.4                  | 312.8     | 317.1  | Priest River  | 4                    | 30                | 69      |
| PEND OREILLE  | 1561.3          | 894.9                  | 917.3     | 744.9  | Pend Oreille River  | 67                   | 34                | 68      |
| COEUR D'ALENE   | 238.5           | 56.8                   | 93.5      | 130.5  | Rathdrum Creek  | 3                    | 30                | 71      |
| PRIEST LAKE   | 119.3           | 54.0                   | 69.0      | 54.8   | Hayden Lake   | 0                    | 0                 | 0       |
|   |                 |                        |           |        | Coeur d'Alene River   | 5                    | 22                | 47      |
|   |                 |                        |           |        | St. Joe River   | 2                    | 30                | 61      |
|   |                 |                        |           |        | Spokane River   | 10                   | 26                | 56      |
|   |                 |                        |           |        | Palouse River   | 1                    | 26                | 71      |

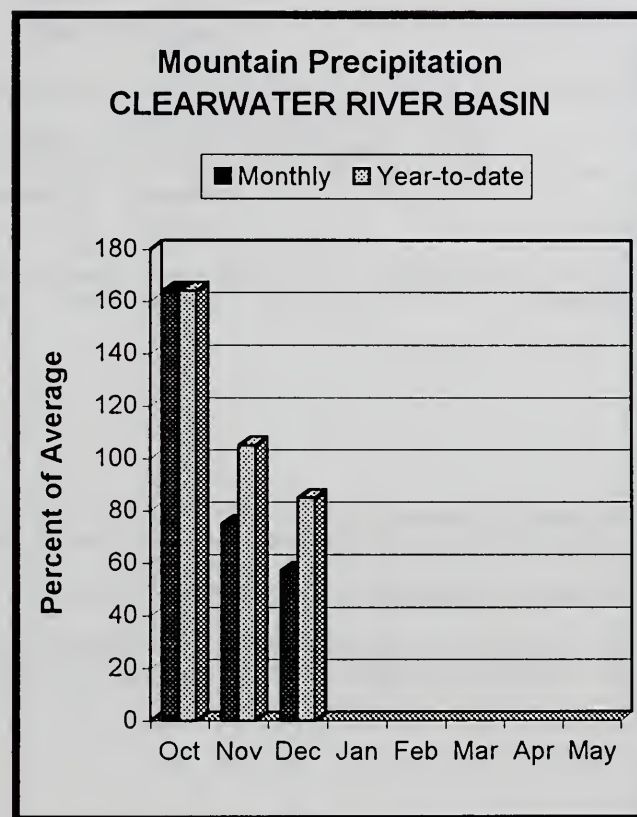
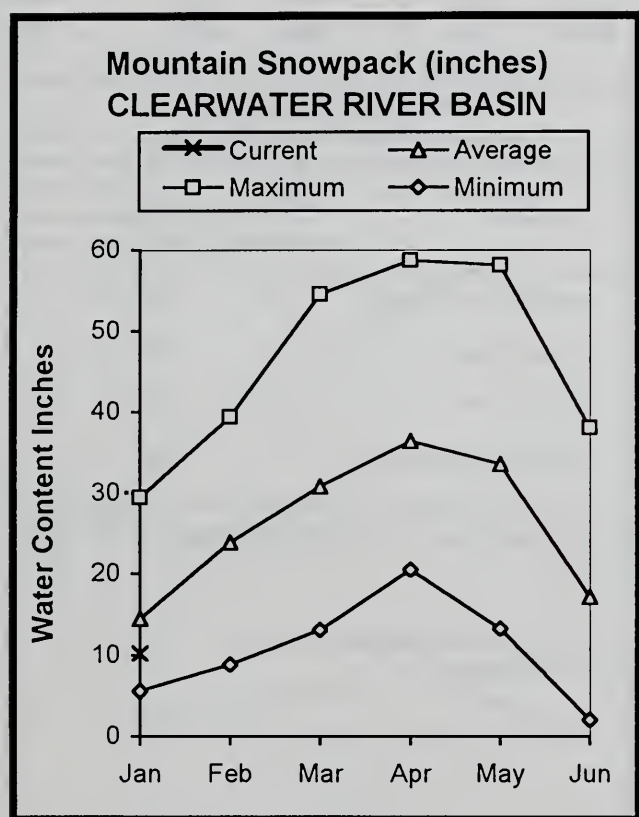
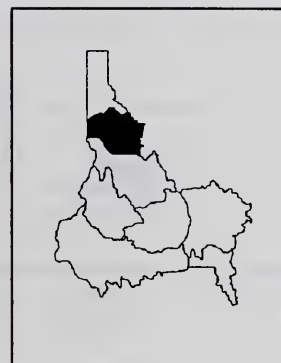
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

# CLEARWATER RIVER BASIN

## JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

The new water year started in October with above average precipitation, 164% of average. However, drier conditions decreased monthly precipitation to 75% of average in November and to only half of average in December. Water year to date precipitation is 85% of average. Snowpacks range from 67% of average in the NF Clearwater basin to 86% in the Selway basin. Overall, the Clearwater basin snowpack is 73% of average. Dworshak Reservoir is below normal at 84% of average due to maintenance work last fall. As typical during El Nino years, streamflows in the Clearwater River basin are forecast below normal. April-July inflow to Dworshak Reservoir is forecast at 82% of average while the Clearwater River at Orofino is expected to yield 88% of average. The Clearwater River has some of the highest correlation of streams in the West with the Southern Oscillation Index which is the atmospheric pressure difference associated with El Nino and La Nina conditions in the southern Pacific Ocean.



CLEARWATER RIVER BASIN  
Streamflow Forecasts - January 1, 1998

| Forecast Point               | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |
|------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
|                              |                 | =====  |                 | Chance Of Exceeding *           |          | =====           |                 |                        |
|                              |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| DWORSHAK RESV INFLOW (1,2)   | APR-JUL         | 1238   | 1900            | 2200                            | 82       | 2500            | 3162            | 2692                   |
|                              | APR-SEP         | 1339   | 2028            | 2340                            | 82       | 2652            | 3341            | 2866                   |
| CLEARWATER at Orofino (1)    | APR-JUL         | 1921   | 3440            | 4130                            | 88       | 4820            | 6339            | 4718                   |
|                              | APR-SEP         | 2027   | 3631            | 4360                            | 88       | 5089            | 6693            | 4976                   |
| CLEARWATER at Spalding (1,2) | APR-JUL         | 2732   | 5302            | 6470                            | 85       | 7638            | 10208           | 7618                   |
|                              | APR-SEP         | 2883   | 5604            | 6840                            | 85       | 8076            | 10797           | 8052                   |

| CLEARWATER RIVER BASIN<br>Reservoir Storage (1000 AF) - End of December |                 |                        |           |        | CLEARWATER RIVER BASIN<br>Watershed Snowpack Analysis - January 1, 1998 |                      |                   |         |
|---|-----------------|------------------------|-----------|--------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |        | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg    |   |                      | Last Yr           | Average |
| DWORSHAK  | 3459.0          | 2053.1                 | 2389.6    | 2431.0 | North Fork Clearwater   | 10                   | 33                | 67      |
|   |                 |                        |           |        | Lochsa River  | 4                    | 38                | 83      |
|   |                 |                        |           |        | Selway River  | 5                    | 43                | 86      |
|   |                 |                        |           |        | Clearwater Basin Total  | 17                   | 36                | 73      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

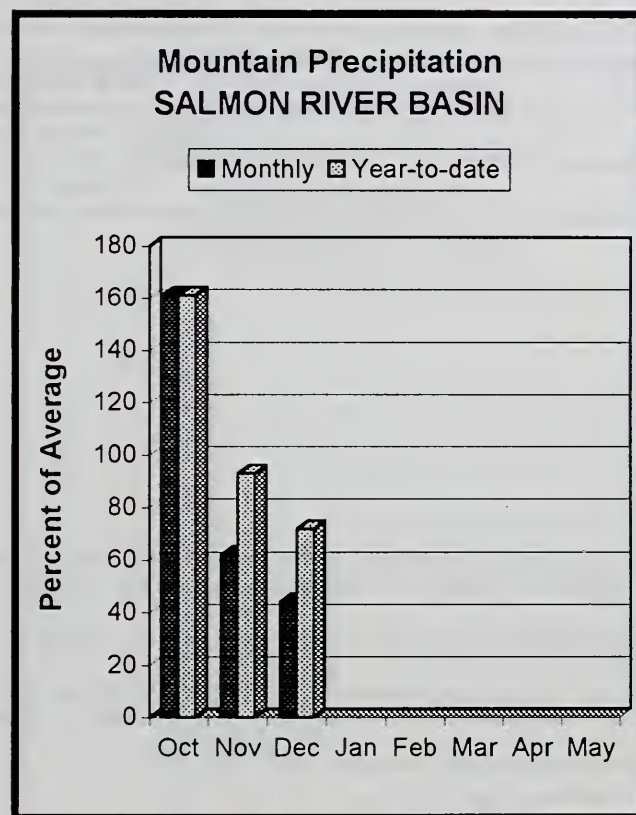
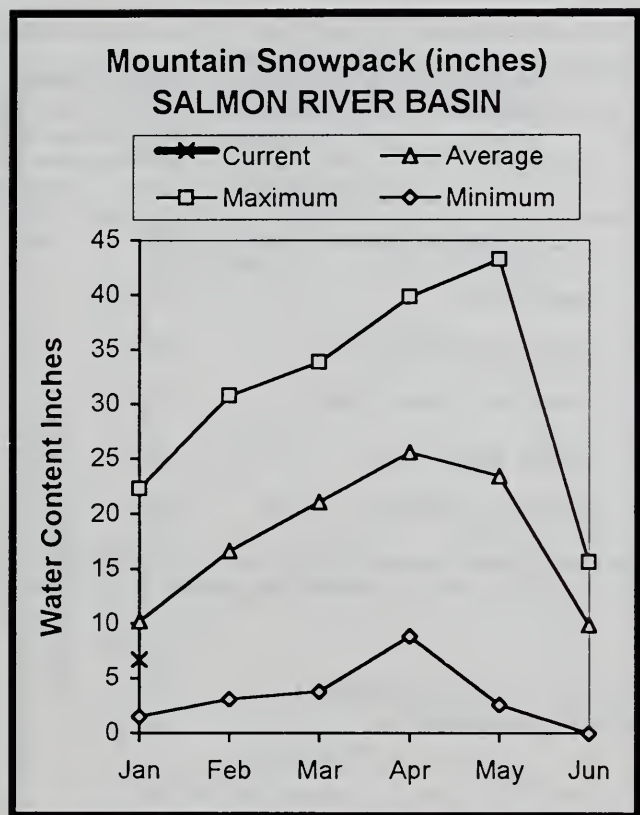
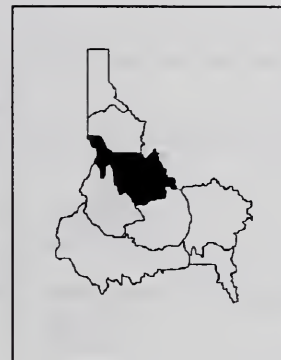
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# SALMON RIVER BASIN

## JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

The new water year started with above normal precipitation in October (161% of average) but decreased to only 44% of average in December. Precipitation for the water year is 72% of average. Snowpacks in the Salmon River basin are the lowest since 1994 when the snowpack was 53% of average. Snowpacks range from 54% in the headwaters of the Middle Fork and main Salmon river basins to 70% of average in the Lemhi and Little Salmon river basins. Streamflow forecasts for this summer's runoff season call for 82% of average for the Salmon River above Salmon and 87% for Salmon River at White Bird. Water users in the basin can expect lower than normal peak flows and earlier recession to low flow conditions if the dry spell continues.

SALMON RIVER BASIN  
Streamflow Forecasts - January 1, 1998

| Forecast Point           | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |
|--------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
|                          |                 | =====  |                 | Chance Of Exceeding *           |          | =====           |                 |                        |
|                          |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| SALMON at Salmon (1)     | APR-JUL         | 274  | 577             | 715                             | 82       | 853             | 1156            | 869                    |
|                          | APR-SEP         | 322  | 678             | 840                             | 82       | 1002            | 1358            | 1019                   |
| SALMON at White Bird (1) | APR-JUL         | 2831   | 4446            | 5180                            | 87       | 5914            | 7529            | 5956                   |
|                          | APR-SEP         | 3157   | 4947            | 5760                            | 87       | 6573            | 8363            | 6602                   |

| SALMON RIVER BASIN<br>Reservoir Storage (1000 AF) - End of December |                 |                        |           |     | SALMON RIVER BASIN<br>Watershed Snowpack Analysis - January 1, 1998 |                      |                   |         |
|---|-----------------|------------------------|-----------|-----|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |     | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg |   |                      | Last Yr           | Average |
|   |                 |                        |           |     | Salmon River ab Salmon  | 8                    | 23                | 54      |
|   |                 |                        |           |     | Lemhi River   | 4                    | 45                | 72      |
|   |                 |                        |           |     | Middle Fork Salmon River  | 3                    | 25                | 54      |
|   |                 |                        |           |     | South Fork Salmon River   | 3                    | 30                | 65      |
|   |                 |                        |           |     | Little Salmon River   | 4                    | 32                | 68      |
|   |                 |                        |           |     | Salmon Basin Total  | 23                   | 31                | 65      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

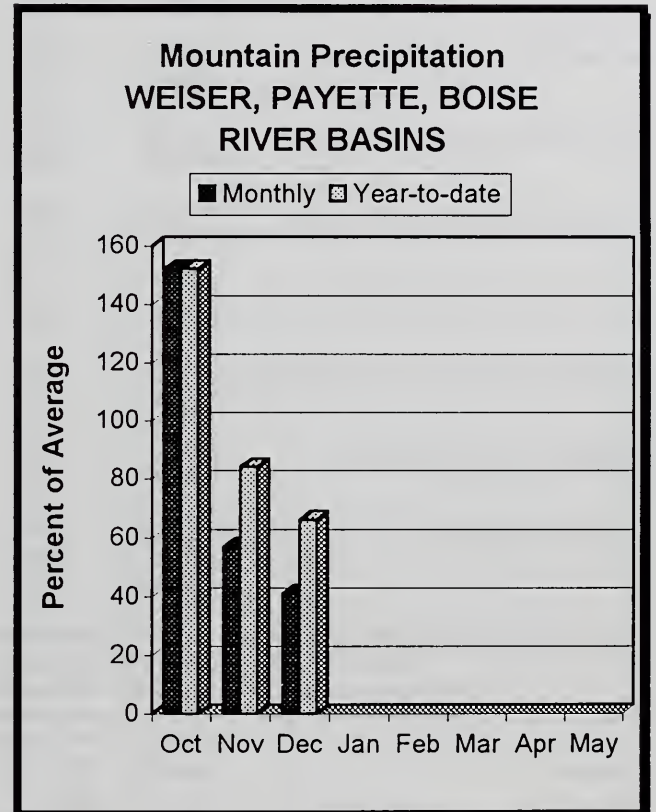
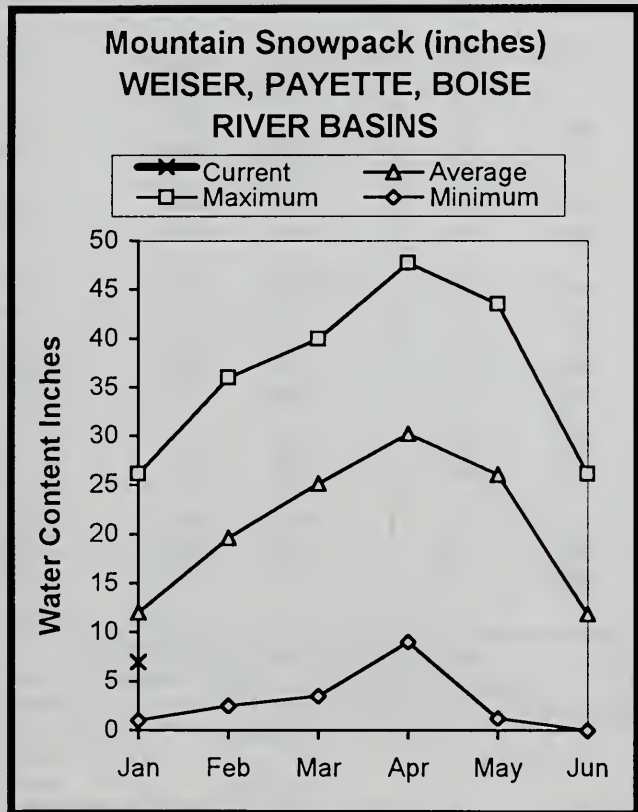
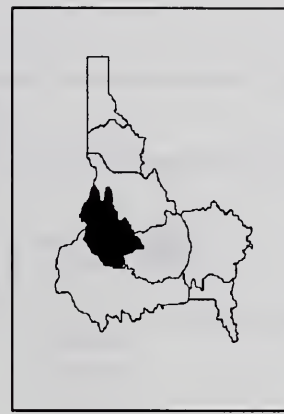
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



# WEISER, PAYETTE, BOISE RIVER BASINS JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

Mountain precipitation in October was 152% of average, but drier conditions set in decreasing monthly precipitation to 57% in November and to 41% in December. Water year to date precipitation is 66% of average. Snowpack in the Boise basin is 54% of average, Payette basin is 64% and the Weiser basin is a little better at 71%. Overall the snowpack in these west central basins is the fifth lowest since 1961 and is similar to the dry years of 1994 and 1991. On the positive side, as a result of last year's high runoff the Boise and Payette reservoir systems are nearly three-quarters full. This is the 10th highest December 31 storage level in the past 43 years for the Boise system. Streamflow forecasts mirror the snowpack and call for 70-80% of average flow. Agricultural water supplies should be adequate this year as a result of the good carryover storage.

WEISER, PAYETTE, BOISE RIVER BASINS  
Streamflow Forecasts - January 1, 1998

| Forecast Point                     | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 |                        |
|------------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
|                                    |                 | Chance Of Exceeding *                                      |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |
|                                    |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| WEISER nr Weiser (1)               | APR-JUL         | 71   | 239             | 315                             | 82       | 391             | 559             | 386                    |
|                                    | APR-SEP         | 79   | 258             | 340                             | 82       | 422             | 601             | 415                    |
| SF PAYETTE at Lowman               | APR-JUL         | 213  | 298             | 355                             | 82       | 412             | 497             | 432                    |
|                                    | APR-SEP         | 253  | 343             | 405                             | 83       | 467             | 557             | 488                    |
| DEADWOOD RESERVOIR Inflow (1,2)    | APR-JUL         | 61   | 93              | 108                             | 80       | 123             | 155             | 135                    |
|                                    | APR-SEP         | 65   | 99              | 114                             | 80       | 129             | 163             | 143                    |
| NF PAYETTE nr Cascade (1,2)        | APR-JUL         | 197  | 343             | 410                             | 83       | 477             | 623             | 496                    |
|                                    | APR-SEP         | 214  | 370             | 441                             | 83       | 512             | 668             | 533                    |
| NF PAYETTE nr Banks (2)            | APR-JUL         | 299  | 434             | 526                             | 81       | 618             | 753             | 648                    |
|                                    | APR-SEP         | 325  | 467             | 563                             | 82       | 659             | 801             | 690                    |
| PAYETTE nr Horseshoe Bend (1,2)    | APR-JUL         | 619  | 1087            | 1300                            | 80       | 1513            | 1981            | 1618                   |
|                                    | APR-SEP         | 701  | 1195            | 1420                            | 81       | 1645            | 2139            | 1755                   |
| BOISE near Twin Springs (1)        | APR-JUL         | 229  | 402             | 480                             | 76       | 558             | 731             | 631                    |
|                                    | APR-SEP         | 252  | 431             | 513                             | 75       | 595             | 774             | 686                    |
| SF BOISE at Anderson Rnch Dm (1,2) | APR-JUL         | 150  | 298             | 365                             | 67       | 432             | 580             | 544                    |
|                                    | APR-SEP         | 176  | 328             | 397                             | 68       | 466             | 618             | 582                    |
| MORES CK nr Arrowrock Dam          | APR-JUL         | 67   | 90              | 106                             | 82       | 122             | 145             | 129                    |
|                                    | APR-SEP         | 72   | 95              | 111                             | 83       | 127             | 150             | 134                    |
| BOISE nr Boise (1,2)               | APR-JUN         | 450  | 759             | 900                             | 71       | 1041            | 1350            | 1264                   |
|                                    | APR-JUL         | 460  | 828             | 995                             | 70       | 1162            | 1530            | 1421                   |
|                                    | APR-SEP         | 544  | 926             | 1100                            | 72       | 1274            | 1656            | 1535                   |

WEISER, PAYETTE, BOISE RIVER BASINS  
Reservoir Storage (1000 AF) - End of December

WEISER, PAYETTE, BOISE RIVER BASINS  
Watershed Snowpack Analysis - January 1, 1998

| Reservoir               | Usable Capacity | *** Usable Storage *** |           |       | Watershed                 | Number of Data Sites | This Year as % of |         |
|-------------------------|-----------------|------------------------|-----------|-------|---------------------------|----------------------|-------------------|---------|
|                         |                 | This Year              | Last Year | Avg   |                           |                      | Last Yr           | Average |
| MANN CREEK              | 11.1            | 1.7                    | 4.8       | 4.2   | Mann Creek                | 1                    | 44                | 76      |
| CASCADE                 | 703.2           | 543.8                  | 598.0     | 419.7 | Weiser River              | 3                    | 35                | 71      |
| DEADWOOD                | 161.9           | 127.4                  | 131.0     | 73.7  | North Fork Payette        | 7                    | 35                | 71      |
| ANDERSON RANCH          | 464.2           | 427.5                  | 405.8     | 319.9 | South Fork Payette        | 4                    | 26                | 52      |
| ARROWROCK               | 286.6           | 181.8                  | 253.0     | 193.8 | Payette Basin Total       | 12                   | 31                | 64      |
| LUCKY PEAK              | 293.2           | 111.5                  | 116.6     | 94.5  | Middle & North Fork Boise | 7                    | 24                | 54      |
| LAKE LOWELL (DEER FLAT) | 177.1           | 114.7                  | 106.0     | 126.0 | South Fork Boise River    | 7                    | 25                | 53      |
|                         |                 |                        |           |       | Mores Creek               | 4                    | 23                | 62      |
|                         |                 |                        |           |       | Boise Basin Total         | 14                   | 24                | 54      |
|                         |                 |                        |           |       | Canyon Creek              | 1                    | 0                 | 0       |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

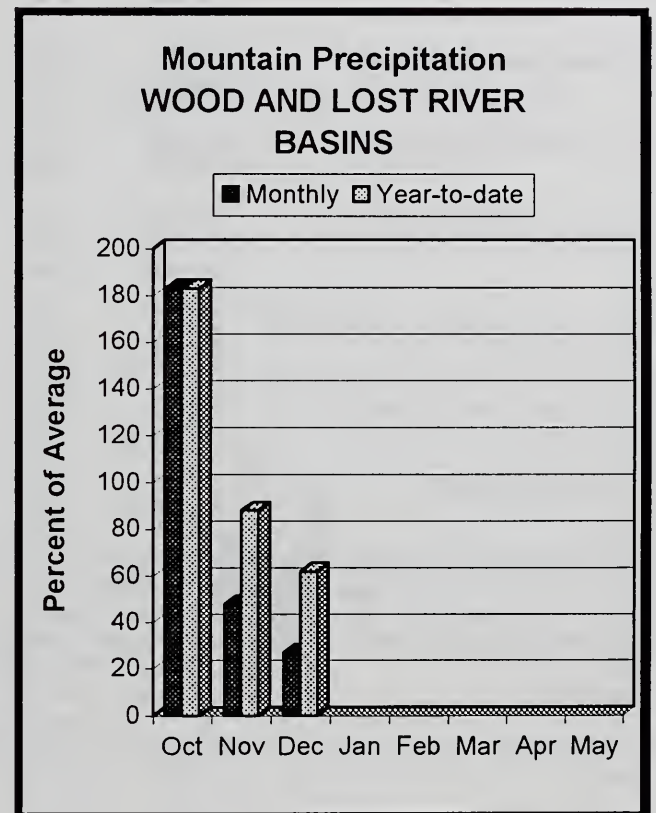
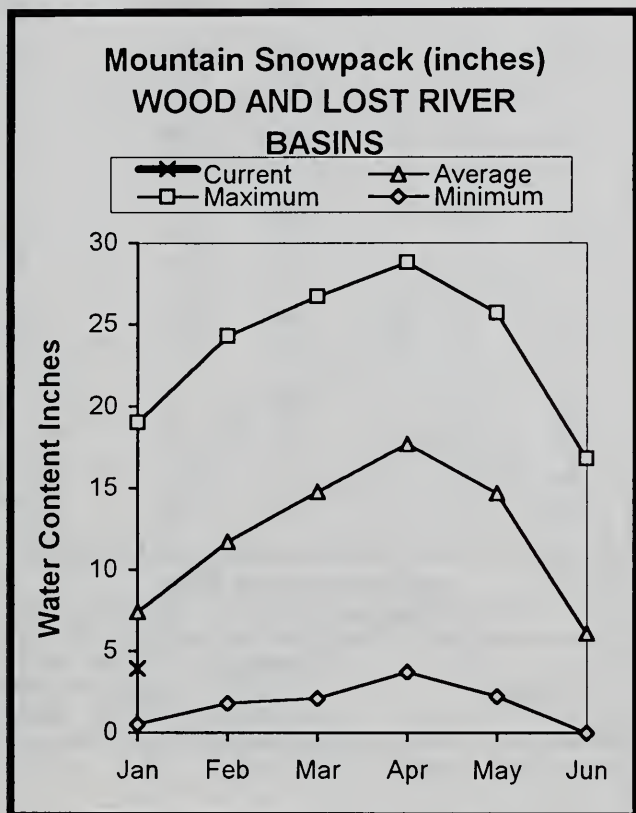
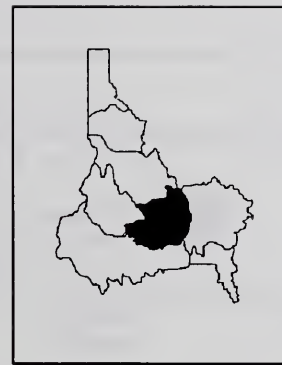
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# WOOD and LOST RIVER BASINS

## JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

The water year started with 183% of average precipitation falling in October; November brought only half the normal amount. December mountain precipitation was a minute 27% of average and only one tenth of last year's December precipitation. Precipitation for the water year is 62% of average. The snowpack in these central mountain basins is the lowest in the state at half of normal and similar to the January 1, 1994, snowpack. Snowpacks in these basins are 50% of average with the exception in the Big Lost Basin which is 61% of average. Magic Reservoir is 76% full; Little Wood Reservoir is 67%; and Mackay Reservoir is 55% full. Streamflow forecasts call for 81% of average for the Little Lost River, 45% for Magic Reservoir inflow, and 71% for Mackay Reservoir inflow. The Surface Water Supply Index, which is a combination of reservoir storage and projected streamflow, indicates water supplies may be marginal in these basins. Water users who rely on non-reservoir water may experience water supply shortages. Water users should monitor snowpack conditions carefully during the next three months; conditions could change with over half the winter still to come.



WOOD AND LOST RIVER BASINS  
Streamflow Forecasts - January 1, 1998

| Forecast Point                      | Forecast Period | <===== Drier ===== Future Conditions ===== Wetter =====> |                 |                                 |          |                 |                 |                        |
|-------------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
|                                     |                 | Chance Of Exceeding *                                    |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |
|                                     |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| BIG WOOD at Hailey (1)              | APR-JUL         | 37   | 120             | 158                             | 62       | 196             | 279             | 255                    |
|                                     | APR-SEP         | 40   | 133             | 175                             | 61       | 217             | 310             | 289                    |
| BIG WOOD near Bellevue              | APR-JUL         | 0.0  | 41              | 80                              | 44       | 119             | 175             | 183                    |
|                                     | APR-SEP         | 0.0  | 48              | 88                              | 45       | 128             | 186             | 197                    |
| CAMAS CREEK near Blaine             | APR-JUL         | 8.0  | 21              | 33                              | 32       | 48              | 77              | 102                    |
|                                     | APR-SEP         | 8.0  | 21              | 34                              | 33       | 50              | 78              | 103                    |
| BIG WOOD below Magic Dam (2)        | APR-JUL         | 0.0  | 76              | 132                             | 45       | 188             | 271             | 295                    |
|                                     | APR-SEP         | 0.0  | 84              | 142                             | 46       | 200             | 284             | 310                    |
| LITTLE WOOD near Carey (2)          | APR-JUL         | 5.0  | 37              | 58                              | 64       | 80              | 111             | 92                     |
|                                     | APR-SEP         | 8.6  | 42              | 64                              | 64       | 86              | 119             | 99                     |
| BIG LOST at Howell Ranch            | APR-JUN         | 57   | 87              | 107                             | 76       | 127             | 157             | 141                    |
|                                     | APR-JUL         | 65   | 107             | 136                             | 75       | 165             | 207             | 181                    |
|                                     | APR-SEP         | 78   | 124             | 156                             | 76       | 188             | 234             | 206                    |
| BIG LOST below Mackay Reservoir (2) | APR-JUL         | 39   | 80              | 108                             | 71       | 136             | 177             | 153                    |
|                                     | APR-SEP         | 55   | 100             | 130                             | 71       | 160             | 205             | 184                    |
| LITTLE LOST blw Wet Creek           | APR-JUL         | 16.2   | 22              | 25                              | 81       | 29              | 34              | 31                     |
|                                     | APR-SEP         | 21   | 28              | 33                              | 83       | 37              | 44              | 39                     |
| LITTLE LOST nr Howe                 | APR-JUL         | 21   | 25              | 28                              | 85       | 31              | 35              | 33                     |
|                                     | APR-SEP         | 27   | 32              | 36                              | 84       | 40              | 45              | 43                     |

| WOOD AND LOST RIVER BASINS<br>Reservoir Storage (1000 AF) - End of December |                 |               |                          |         | WOOD AND LOST RIVER BASINS<br>Watershed Snowpack Analysis - January 1, 1998 |                      |                           |              |
|---|-----------------|---------------|--------------------------|---------|---|----------------------|---------------------------|--------------|
| Reservoir   | Usable Capacity | *** This Year | Usable Storage Last Year | *** Avg | Watershed   | Number of Data Sites | This Year as % of Last Yr | % of Average |
| MAGIC   | 191.5           | 145.3         | 99.6                     | 89.0    | Big Wood ab Magic   | 9                    | 21                        | 52           |
| LITTLE WOOD   | 30.0            | 20.2          | 22.0                     | 13.5    | Camas Creek   | 3                    | 23                        | 49           |
| MACKAY  | 44.4            | 24.4          | 15.2                     | 26.4    | Big Wood Basin Total  | 11                   | 22                        | 52           |
|   |                 |               |                          |         | Little Wood River   | 3                    | 21                        | 49           |
|   |                 |               |                          |         | Fish Creek  | 0                    | 0                         | 0            |
|   |                 |               |                          |         | Big Lost River  | 5                    | 22                        | 61           |
|   |                 |               |                          |         | Little Lost River   | 3                    | 26                        | 51           |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

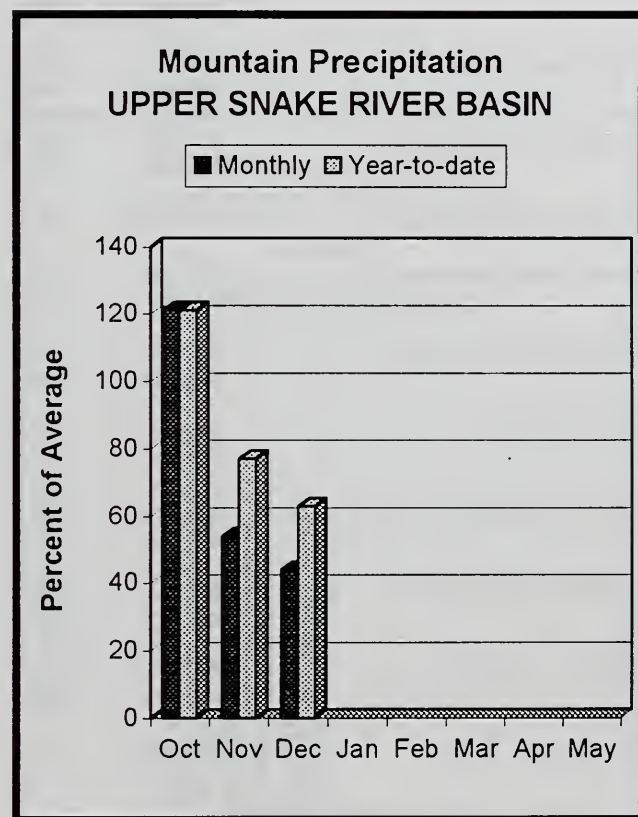
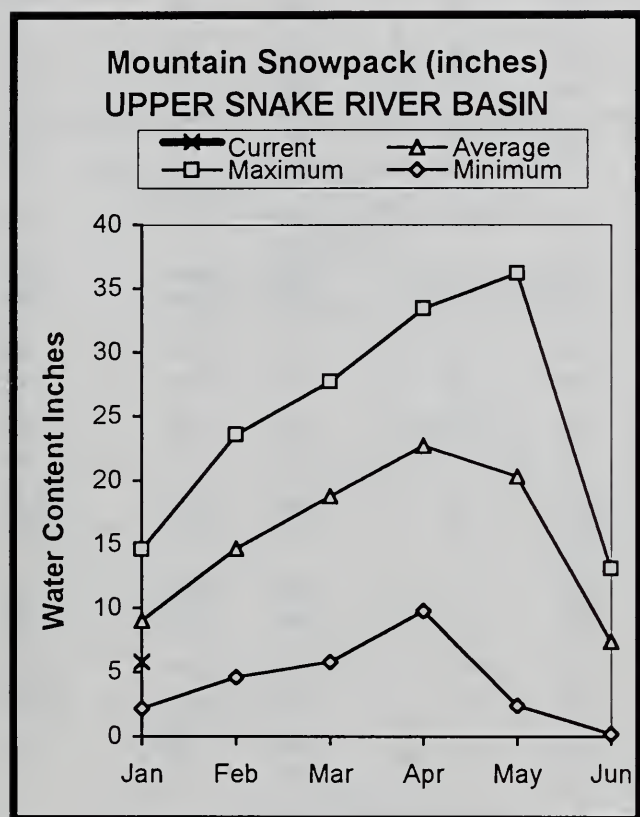
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# UPPER SNAKE RIVER BASIN

## JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

Water year 1998 continued the trend established last water year with above normal precipitation falling in October, 121% of average. November brought a drying trend with only 54% of average precipitation, **the first time monthly precipitation in the upper Snake River basin was below normal since February 1997.** This dry trend continued in December with mountain precipitation at 44% of average. Water year to date precipitation is 63% of average. Snowpacks range from 73% of average in the headwaters of the Henry's Fork, Teton and Snake basins to 50% of average in the Hoback, Greys and Blackfoot basins. This year's snowpack is about one-third of last year's January 1, 1997, record snow levels. Combined reservoir storage in the upper Snake River basin is 122% of average, 78% of capacity. Streamflow forecasts call for below normal runoff and range from 75-90% of average. Good reservoir carryover storage will buffer low streamflow impacts. Agricultural water shortages are not anticipated for reservoir water users; unregulated streamflow will be below normal due to the low snow water content levels.



UPPER SNAKE RIVER BASIN  
Streamflow Forecasts - January 1, 1998

| Forecast Point                   | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 |                        |
|----------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
|                                  |                 | =====  |                 | Chance Of Exceeding *           |          | =====           |                 | 30-Yr Avg.<br>(1000AF) |
|                                  |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| HENRYS FORK near Ashton (2)      | APR-JUL         | 407  | 462             | 500                             | 92       | 538             | 593             | 544                    |
|                                  | APR-SEP         | 550  | 616             | 660                             | 90       | 704             | 770             | 730                    |
| HENRYS FORK near Rexburg (2)     | APR-JUL         | 794  | 964             | 1080                            | 88       | 1196            | 1366            | 1228                   |
|                                  | APR-SEP         | 1007   | 1199            | 1330                            | 86       | 1461            | 1653            | 1551                   |
| FALLS near Squirrel (1,2)        | APR-JUL         | 244  | 303             | 330                             | 91       | 357             | 416             | 364                    |
|                                  | APR-SEP         | 301  | 369             | 399                             | 92       | 429             | 497             | 432                    |
| TETON near Driggs                | APR-JUL         | 71   | 101             | 122                             | 80       | 143             | 173             | 153                    |
|                                  | APR-SEP         | 98   | 135             | 160                             | 80       | 185             | 222             | 199                    |
| TETON near St. Anthony           | APR-JUL         | 212  | 276             | 320                             | 85       | 364             | 428             | 377                    |
|                                  | APR-SEP         | 266  | 339             | 389                             | 85       | 439             | 512             | 457                    |
| SNAKE near Moran (1,2)           | APR-SEP         | 459  | 621             | 695                             | 80       | 769             | 931             | 869                    |
| SNAKE above Palisades (2)        | APR-JUL         | 1475   | 1779            | 1985                            | 86       | 2191            | 2495            | 2311                   |
|                                  | APR-SEP         | 1723   | 2064            | 2296                            | 86       | 2528            | 2869            | 2671                   |
| GREYS above Palisades            | APR-JUL         | 150  | 209             | 250                             | 75       | 291             | 350             | 333                    |
|                                  | APR-SEP         | 190  | 255             | 300                             | 77       | 345             | 410             | 388                    |
| SALT near Etna                   | APR-JUL         | 118  | 188             | 235                             | 74       | 282             | 352             | 319                    |
|                                  | APR-SEP         | 171  | 251             | 305                             | 76       | 359             | 439             | 399                    |
| PALISADES RESERVOIR INFLOW (1,2) | APR-JUL         | 1662   | 2321            | 2620                            | 81       | 2919            | 3578            | 3226                   |
|                                  | APR-SEP         | 1992   | 2733            | 3070                            | 82       | 3407            | 4148            | 3763                   |
| SNAKE near Heise (2)             | APR-JUL         | 2000   | 2476            | 2800                            | 81       | 3124            | 3600            | 3451                   |
|                                  | APR-SEP         | 2367   | 2911            | 3280                            | 81       | 3649            | 4193            | 4049                   |
| SNAKE nr Blackfoot (1,2)         | APR-JUL         | 2211   | 3249            | 3720                            | 84       | 4191            | 5229            | 4444                   |
|                                  | APR-SEP         | 2908   | 4072            | 4600                            | 84       | 5128            | 6292            | 5482                   |
| PORTNEUF at Topaz                | MAR-JUL         | 59   | 72              | 81                              | 94       | 90              | 103             | 86                     |
|                                  | MAR-SEP         | 72   | 88              | 98                              | 92       | 108             | 124             | 107                    |
| AMERICAN FALLS RESV INFLOW (1,2) | APR-JUL         | 720  | 1765            | 2240                            | 73       | 2715            | 3760            | 3066                   |
|                                  | APR-SEP         | 710  | 1879            | 2410                            | 73       | 2941            | 4110            | 3303                   |

| UPPER SNAKE RIVER BASIN<br>Reservoir Storage (1000 AF) - End of December |                 |                        |           |        | UPPER SNAKE RIVER BASIN<br>Watershed Snowpack Analysis - January 1, 1998 |                      |                   |         |
|--|-----------------|------------------------|-----------|--------|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |        | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg    |  |                      | Last Yr           | Average |
| HENRYS LAKE  | 90.4            | 89.6                   | 88.1      | 74.0   | Camas-Beaver Creeks  | 4                    | 27                | 45      |
| ISLAND PARK  | 135.2           | 111.3                  | 120.3     | 88.9   | Henry's Fork River   | 10                   | 32                | 72      |
| GRASSY LAKE  | 15.2            | 8.2                    | 12.7      | 10.5   | Teton River  | 7                    | 34                | 68      |
| JACKSON LAKE   | 847.0           | 644.3                  | 680.0     | 470.2  | SNAKE above Jackson Lake   | 9                    | 36                | 75      |
| PALISADES  | 1400.0          | 1308.4                 | 1244.9    | 1035.6 | Gros Ventre River  | 2                    | 33                | 63      |
| RIRIE  | 80.5            | 37.3                   | 42.4      | 36.4   | Hoback River   | 5                    | 22                | 51      |
| BLACKFOOT  | 348.7           | 260.1                  | 275.1     | 230.6  | Greys River  | 3                    | 27                | 52      |
| AMERICAN FALLS   | 1672.6          | 1130.4                 | 1407.1    | 1002.4 | Salt River   | 4                    | 31                | 64      |
|  |                 |                        |           |        | SNAKE above Palisades  | 22                   | 32                | 67      |
|  |                 |                        |           |        | Willow Creek   | 7                    | 25                | 65      |
|  |                 |                        |           |        | Blackfoot River  | 3                    | 22                | 51      |
|  |                 |                        |           |        | Portneuf River   | 2                    | 30                | 68      |
|  |                 |                        |           |        | SNAKE abv American Falls   | 32                   | 30                | 66      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

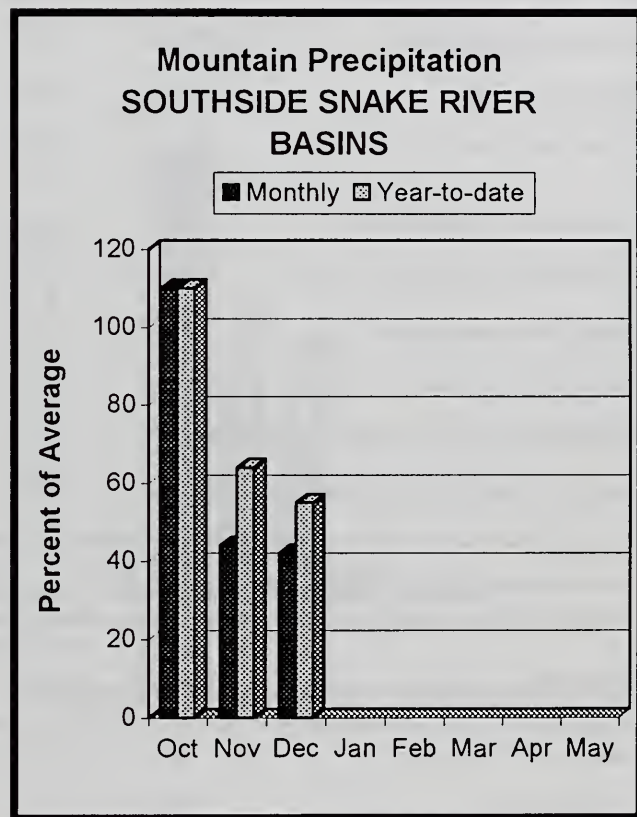
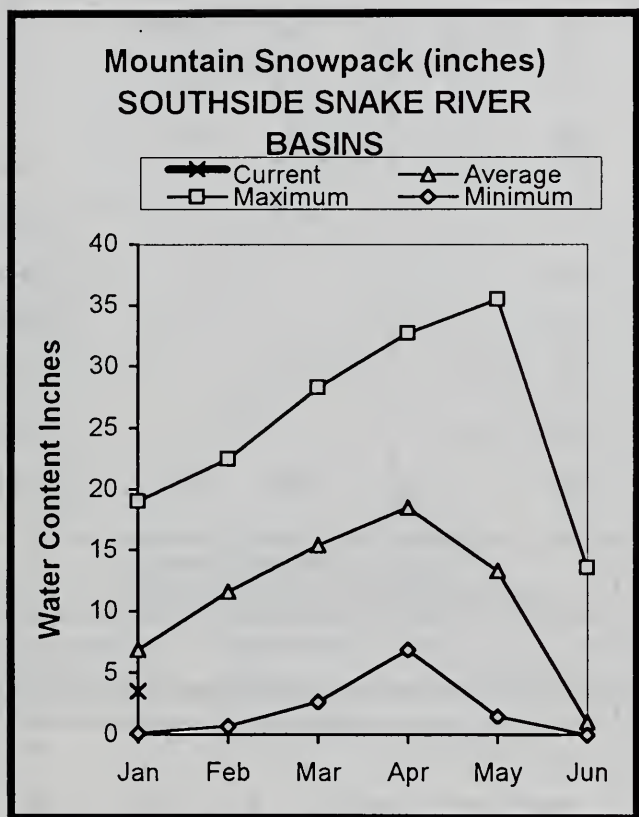
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



# SOUTHSIDE SNAKE RIVER BASINS JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

Water year 1998 started with near normal precipitation falling in October. The weather turned drier with less than half of normal monthly amounts falling in November and December. Water year to date precipitation is 55% of average, the lowest in the state. Snow water content levels range from 50% of average in the Owyhee and Oakley basins to 70% of average in the Salmon Falls and Bruneau basins. Well above average carryover reservoir storage and high base flows from last year's runoff will help buffer low streamflows. Oakley Reservoir is 50% full; Salmon Falls Reservoir is 39% full, and Owyhee Reservoir is 61% full. Streamflow forecasts range from 45% of average in the Owyhee basin to 70% for the Oakley Reservoir inflow. The Surface Water Supply Index, which is a combination of reservoir storage and projected streamflow, indicates water supplies should be adequate in the Oakley and Salmon Falls basins. In-stream water users utilizing natural streamflows should be prepared for below normal volumes.

SOUTHSIDE SNAKE RIVER BASINS  
Streamflow Forecasts - January 1, 1998

| Forecast Point                        | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |
|---------------------------------------|-----------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
|                                       |                 | =====  |                 | Chance Of Exceeding *           |          | =====           |                 |                        |
|                                       |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| OAKLEY RESV INFLOW                    | MAR-JUL         | 12.7   | 18.6            | 23                              | 70       | 28              | 37              | 33                     |
|                                       | MAR-SEP         | 14.8   | 21              | 26                              | 72       | 31              | 40              | 36                     |
| SALMON FALLS CREEK nr San Jacinto     | MAR-JUN         | 29   | 45              | 58                              | 67       | 72              | 96              | 86                     |
|                                       | MAR-JUL         | 31   | 48              | 61                              | 67       | 76              | 101             | 92                     |
|                                       | MAR-SEP         | 34   | 51              | 65                              | 67       | 80              | 106             | 96                     |
| BRUNEAU near Hot Springs              | MAR-JUL         | 92   | 132             | 162                             | 69       | 196             | 251             | 235                    |
|                                       | MAR-SEP         | 98   | 138             | 170                             | 69       | 205             | 263             | 246                    |
| OWYHEE near Gold Creek (2)            | MAR-JUL         | 0.0  | 7.9             | 13.8                            | 44       | 19.7            | 28              | 31                     |
| OWYHEE nr Owyhee (2)                  | APR-JUL         | 0.0  | 16.8            | 38                              | 44       | 59              | 90              | 86                     |
| OWYHEE near Rome                      | FEB-JUL         | 114  | 219             | 311                             | 50       | 418             | 606             | 622                    |
| OWYHEE RESV INFLOW (2)                | FEB-JUL         | 133  | 239             | 328                             | 50       | 431             | 609             | 656                    |
|                                       | FEB-SEP         | 145  | 252             | 342                             | 50       | 445             | 623             | 684                    |
| SUCCOR CK nr Jordan Valley            | FEB-JUL         | 0.0  | 3.6             | 8.4                             | 52       | 13.2            | 20              | 16.2                   |
| SNAKE RIVER at King Hill (1,2)        | APR-JUL         |  |                 | 2030                            | 70       |                 |                 | 2896                   |
| SNAKE RIVER near Murphy (1,2)         | APR-JUL         |  |                 | 2100                            | 71       |                 |                 | 2980                   |
| SNAKE RIVER at Weiser (1,2)           | APR-JUL         |  |                 | 3130                            | 57       |                 |                 | 5465                   |
| SNAKE RIVER at Hells Canyon Dam (1,2) | APR-JUL         |  |                 | 3500                            | 57       |                 |                 | 6129                   |
| SNAKE blw Lower Granite Dam (1,2)     | APR-JUL         | 5827   | 13304           | 16700                           | 77       | 20096           | 27573           | 21650                  |

| SOUTHSIDE SNAKE RIVER BASINS<br>Reservoir Storage (1000 AF) - End of December |                 |                        |           |        | SOUTHSIDE SNAKE RIVER BASINS<br>Watershed Snowpack Analysis - January 1, 1998 |                      |                   |         |
|---|-----------------|------------------------|-----------|--------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |        | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg    |   |                      | Last Yr           | Average |
| OAKLEY  | 77.4            | 38.4                   | 26.2      | 23.7   | Raft River  | 1                    | 22                | 60      |
| SALMON FALLS  | 182.6           | 71.7                   | 48.0      | 44.9   | Goose-Trapper Creeks  | 2                    | 21                | 55      |
| WILDHORSE RESERVOIR   | 71.5            | 53.5                   | 51.0      | 30.5   | Salmon Falls Creek  | 4                    | 35                | 73      |
| OWYHEE  | 715.0           | 438.0                  | 454.6     | 421.0  | Bruneau River   | 5                    | 35                | 70      |
| BROWNLEE  | 1419.3          | 1356.0                 | 1415.4    | 1269.8 | Owyhee Basin Total  | 8                    | 25                | 47      |

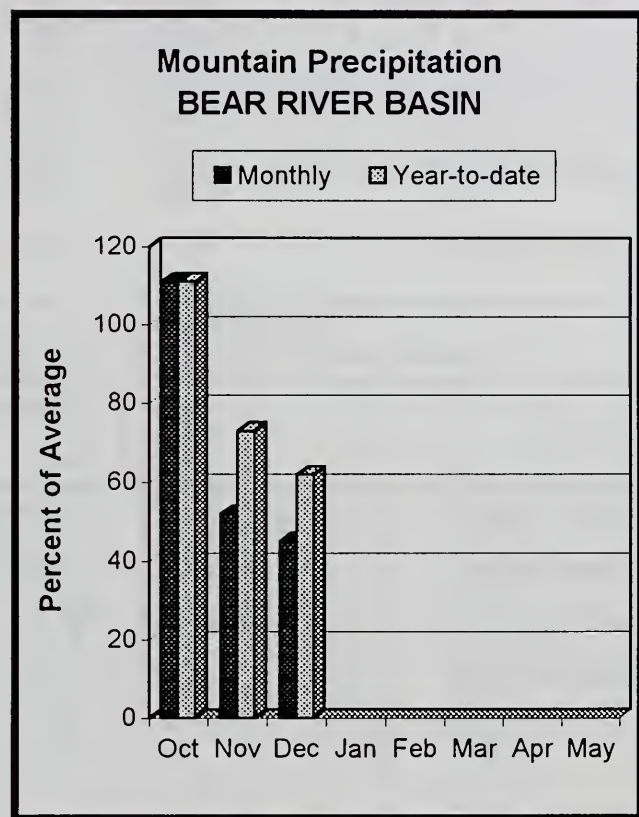
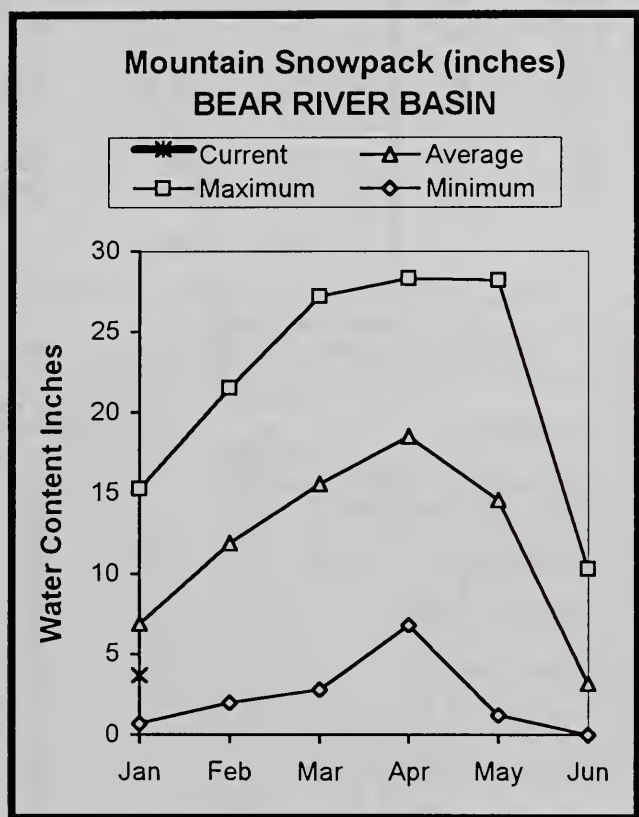
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

# BEAR RIVER BASIN

## JANUARY 1, 1998



## WATER SUPPLY OUTLOOK

The new water year brought decreasing amounts of precipitation each month. October precipitation was 111% of average and decreased to 45% in December. Precipitation since October 1 is 62% of average. Snowpacks in the Bear River basin are near the lowest in the state. Snowpack percentages range from 43% of average in the Montpelier Creek basin to 70% in the Cub and Malad basins. Overall, the Bear River snowpack is 60% of average which is about a quarter of last year's snowpack at this time. Bear Lake and Montpelier Creek reservoir storage is above average as a result of last year's high runoff. Each reservoir is about three-quarters full. Bear Lake has the sixth highest December 31 storage level in 75 years and is the highest since December 31, 1982. Drafting will occur to maintain adequate flood control storage space in the reservoir. Streamflow forecasts range from 60-75% of average. Bear Lake Reservoir water users will have adequate water supply this summer; in-stream water users may experience shortages if the dry conditions persist.



BEAR RIVER BASIN  
Streamflow Forecasts - January 1, 1998

| Forecast Point                       | Forecast<br>Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 | 30-Yr Avg<br>(1000AF) |
|--------------------------------------|--------------------|--|-----------------|---------------------------------|----------|-----------------|-----------------|-----------------------|
|                                      |                    | =====  |                 | Chance Of Exceeding *           |          | =====           |                 |                       |
|                                      |                    | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                       |
| BEAR R nr Randolph, UT               | APR-JUL            | 1.0  | 41              | 73                              | 62       | 105             | 153             | 118                   |
|                                      | APR-SEP            | 1.0  | 44              | 79                              | 62       | 114             | 165             | 127                   |
| SMITHS FK nr Border, WY              | APR-JUL            | 42   | 59              | 73                              | 72       | 91              | 126             | 102                   |
|                                      | APR-SEP            | 52   | 71              | 87                              | 74       | 107             | 145             | 118                   |
| THOMAS FK nr WY-ID State Line        | APR-JUL            | 8.3  | 13.2            | 18.0                            | 55       | 25              | 39              | 33                    |
|                                      | APR-SEP            | 9.6  | 14.8            | 20                              | 56       | 27              | 42              | 36                    |
| BEAR R blw Stewart Dam nr Montpelier | APR-JUL            | 55   | 123             | 170                             | 59       | 217             | 285             | 288                   |
|                                      | APR-SEP            | 68   | 143             | 195                             | 60       | 247             | 322             | 327                   |
| MONTPELIER CK nr Montpelier (2)      | APR-JUL            | 3.9  | 5.5             | 7.0                             | 57       | 8.9             | 12.6            | 12.2                  |
|                                      | APR-SEP            | 4.9  | 6.6             | 8.0                             | 56       | 9.7             | 13.0            | 14.2                  |
| CUB R nr Preston                     | APR-JUL            | 17.0   | 28              | 35                              | 75       | 42              | 53              | 47                    |

| BEAR RIVER BASIN<br>Reservoir Storage (1000 AF) - End of December |                 |                        |           |       | BEAR RIVER BASIN<br>Watershed Snowpack Analysis - January 1, 1998 |                      |                   |         |
|---|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |       | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg   |   |                      | Last Yr           | Average |
| WOODRUFF NARROWS  |                 | NO REPORT              |           |       | Smiths & Thomas Forks   | 2                    | 26                | 64      |
| WOODRUFF CREEK  |                 | NO REPORT              |           |       | Bear River ab WY-ID line  | 7                    | 31                | 61      |
| BEAR LAKE   | 1421.0          | 1127.3                 | 897.5     | 992.6 | Montpelier Creek  | 1                    | 25                | 43      |
| MONTPELIER CREEK  | 4.0             | 2.9                    | 2.6       | 1.6   | Mink Creek  | 1                    | 23                | 49      |
|   |                 |                        |           |       | Cub River   | 1                    | 27                | 71      |
|   |                 |                        |           |       | Bear River ab ID-UT line  | 13                   | 29                | 60      |
|   |                 |                        |           |       | Malad River   | 1                    | 20                | 69      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

Streamflow Adjustment List For All Forecasts Published In Idaho Basin Outlook Report

Streamflow forecasts are projections of runoff volumes that would have occurred naturally without influences from upstream reservoirs or diversions. These values are referred to as natural or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and interbasin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made to each forecast point in this report.

Panhandle River Basins

- KOOTENAI R AT LEONIA, ID
  - + LAKE KOOCANUSA (STORAGE CHANGE)
- CLARK FORK R AT WHITEHORSE RAPIDS, ID
  - + HUNGRY HORSE (STORAGE CHANGE)
  - + FLATHEAD LAKE (STORAGE CHANGE)
  - + NOXON RAPIDS RESV (STORAGE CHANGE)
- PEND OREILLE LAKE INFLOW, ID
  - + PEND OREILLE R AT NEWPORT, WA
  - + HUNGRY HORSE (STORAGE CHANGE)
  - + FLATHEAD LAKE (STORAGE CHANGE)
  - + NOXON RAPIDS (STORAGE CHANGE)
  - + PEND OREILLE LAKE (STORAGE CHANGE)
- PRIEST R NR PRIEST R, ID
  - + PRIEST LAKE (STORAGE CHANGE)
- COEUR D'ALENE R AT ENAVILLE, ID - No Corrections
- ST. JOE R AT CALDER, ID - No Corrections
- SPOKANE R NR POST FALLS, ID
- SPOKANE R AT LONG LAKE, ID
  - + COEUR D'ALENE LAKE (STORAGE CHANGE)
- SPOKANE R AT LONG LAKE, ID
  - + COEUR D'ALENE LAKE (STORAGE CHANGE)

Clearwater River Basin

- CLEARWATER R AT OROFINO, ID - No Corrections
- DWORSHAK RESERVOIR INFLOW, ID
  - + CLEARWATER R NR PECK, ID
  - + DWORSHAK RESV (STORAGE CHANGE)
  - CLEARWATER R AT OROFINO, ID
- CLEARWATER R AT SPALDING, ID
  - + DWORSHAK RESV (STORAGE CHANGE)

Salmon River Basin

- SALMON R AT SALMON, ID - No Corrections
- SALMON R AT WHITE BIRD, ID - No Corrections

Weiser, Payette, Boise River Basins

- WEISER R NR WEISER, ID - No Corrections
- SF PAYETTE R AT LOWMAN, ID - No Corrections
- DEADWOOD RESERVOIR INFLOW, ID
  - + DEADWOOD R BLW DEADWOOD RESV NR LOWMAN
  - + DEADWOOD RESV (STORAGE CHANGE)
- NF PAYETTE R AT CASCADE, ID
  - + CASCADE RESV (STORAGE CHANGE)
- NF PAYETTE R NR BANKS, ID
  - + CASCADE RESV (STORAGE CHANGE)
- PAYETTE R NR HORSESHOE BEND, ID
  - + DEADWOOD RESV (STORAGE CHANGE)
  - + CASCADE RESV (STORAGE CHANGE)
- BOISE R NR TWIN SPRINGS, ID - No Corrections
- SF BOISE R AT ANDERSON RANCH DAM, ID
  - + ANDERSON RANCH RESV (STORAGE CHANGE)
- MORES CK NR ARROWROCK DAM, ID - No Corrections
- BOISE R NR BOISE, ID
  - + ANDERSON RANCH RESV (STORAGE CHANGE)
  - + ARROWROCK RESV (STORAGE CHANGE)
  - + LUCKY PEAK RESV (STORAGE CHANGE)

Wood and Lost River Basins

- BIG WOOD R AT HAILEY, ID - No Corrections
- BIG WOOD R NR BELLEVUE, ID - No Corrections
- CAMAS CK NR BLAINE, ID - No Corrections
- BIG WOOD R BLW MAGIC DAM NR RICHFIELD, ID
  - + MAGIC RESV (STORAGE CHANGE)
- LITTLE WOOD R NR CAREY, ID
  - + LITTLE WOOD RESV (STORAGE CHANGE)
- BIG LOST R AT HOWELL RANCH NR CHILLY, ID - No Corrections
- BIG LOST R BLW MACKAY RESV NR MACKAY, ID
  - + MACKAY RESV (STORAGE CHANGE)
- LITTLE LOST R BLW WET CK NR HOWE, ID - No Corrections

Upper Snake River Basin

- HENRYS FORK NR ASHTON, ID
  - + HENRYS LAKE (STORAGE CHANGE)
  - + ISLAND PARK RESV (STORAGE CHANGE)
- HENRYS FORK NR REXBURG, ID
  - + HENRYS LAKE (STORAGE CHANGE)
  - + ISLAND PARK RESV (STORAGE CHANGE)
  - + DIV FM HENRYS FK BTW ASHTON & ST. ANTHONY, ID
  - + DIV FM HENRYS FK BTW ST. ANTHONY & REXBURG, ID
- FALLS R NR SQUIRREL, ID (Discontinued)
  - + GRASSY LAKE (STORAGE CHANGE)
- TETON R ABV SO LEIGH CK NR DRIGGS, ID - No Corrections
- TETON R NR ST. ANTHONY, ID
  - CROSS CUT CANAL
  - + SUM OF DIVERSIONS ABV GAGE
- SNAKE R NR MORAN, WY
  - + JACKSON LAKE (STORAGE CHANGE)
- PACIFIC CK AT MORAN, WY - No Corrections
- SNAKE R ABV PALISADES RESV NR ALPINE, WY
  - + JACKSON LAKE (STORAGE CHANGE)
- GREYS R ABV PALISADES RESV, WY - No Corrections
- SALT R ABV RESV NR ETNA, WY - No Corrections
- PALISADES RESERVOIR INFLOW, ID
  - + SNAKE R NR IRWIN, ID
  - + PALISADES RESV (STORAGE CHANGE)
  - + JACKSON LAKE (STORAGE CHANGE)
- SNAKE R NR HEISE, ID
  - + PALISADES RESV (STORAGE CHANGE)
  - + JACKSON LAKE (STORAGE CHANGE)
- SNAKE R NR BLACKFOOT, ID
  - + PALISADES RESV (STORAGE CHANGE)
  - + JACKSON LAKE (STORAGE CHANGE)
  - + DIV FM SNAKE R BTW HEISE AND SHELLEY GAGES
  - + DIV FM SNAKE R BTW SHELLEY AND BLACKFT, ID
- PORTNEUF R AT TOPAZ, ID - No Corrections
- AMERICAN FALLS RESERVOIR INFLOW, ID
  - + SNAKE R AT NEELEY, ID
  - + AMERICAN FALLS (STORAGE CHANGE)
  - + PALISADES RESV (STORAGE CHANGE)
  - + JACKSON LAKE (STORAGE CHANGE)



Southside Snake River Basins

OAKLEY RESERVOIR INFLOW, ID

+ GOOSE CK ABV TRAPPER CK NR OAKLEY, ID

+ TRAPPER CK NR OAKLEY, ID

SALMON FALLS CK NR SAN JACINTO, NV - No Corrections

BRUNEAU R NR HOT SPRINGS, ID - No Corrections

OWYHEE R NR GOLD CK, NV

+ WILDHORSE RESV (STORAGE CHANGE)

OWYHEE R NR ROME, OR

+ WILDHORSE RESV (STORAGE CHANGE)

+ JORDAN VALLEY RESV (STORAGE CHANGE)

OWYHEE RESERVOIR INFLOW, OR

+ OWYHEE R BLW OWYHEE DAM, OR

+ OWYHEE RESV (STORAGE CHANGE)

+ DIV TO NORTH AND SOUTH CANALS

SUCCOR CK NR JORDAN VALLEY, OR - No Corrections

SNAKE R - KING HILL, ID - No Corrections

SNAKE R NR MURPHY, ID - No Corrections

SNAKE R AT WEISER, ID - No Corrections

SNAKE R AT HELLS CANYON DAM, ID

+ BROWNLEE RESV (STORAGE CHANGE)

Bear River Basin

BEAR R NR RANDOLPH, UT

+ SULPHUR CK RESV (STORAGE CHANGE)

+ CHAPMAN CANAL DIVERSION

+ WOODRUFF NARROWS RESV (STORAGE CHANGE)

SMITHS FORK NR BORDER, WY - No Corrections

THOMAS FORK NR WY-ID STATELINE - No Corrections

BEAR R BLW STEWART DAM, ID

+ SULPHUR CK RESV (STORAGE CHANGE)

+ CHAPMAN CANAL DIVERSION

+ WOODRUFF NARROWS RESV (STORAGE CHANGE)

+ TOTAL OF 12 CANALS

+ WESTFORK CANAL

+ DINGLE INLET CANAL

+ RAINBOW INLET CANAL

MONTPELIER CK NR MONTPELIER, ID

+ MONTPELIER CK RESV (STORAGE CHANGE)

CUB R NR PRESTON, ID - No Corrections

**RESERVOIR CAPACITY DEFINITIONS** - Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. The table below lists these volumes for each reservoir in this report, and defines the storage volumes that NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage.

| BASIN/<br>RESERVOIR                | DEAD STORAGE |         | INACTIVE STORAGE |         | ACTIVE STORAGE |        | SURCHARGE STORAGE |        | NRCS CAPACITY            |  | NRCS FIGURES |  |
|------------------------------------|--------------|---------|------------------|---------|----------------|--------|-------------------|--------|--------------------------|--|--------------|--|
|                                    |              |         |                  |         |                |        |                   |        |                          |  | INCLUDE      |  |
| <b>PANHANDLE REGION</b>            |              |         |                  |         |                |        |                   |        |                          |  |              |  |
| HUNGARY HORSE                      | 39.73        | --      | --               | 3451.00 | --             | 3451.0 | --                | 3451.0 | ACTIVE                   |  |              |  |
| FLATHEAD LAKE                      | Unknown      | --      | --               | 1791.00 | --             | 1971.0 | --                | 1971.0 | ACTIVE                   |  |              |  |
| NOXON RAPIDS                       | Unknown      | --      | --               | 335.00  | --             | 335.0  | --                | 335.0  | ACTIVE                   |  |              |  |
| PEND ORELLE                        | 406.20       | 112.40  | 1042.70          | --      | --             | 1561.3 | --                | 1561.3 | DEAD + INACTIVE + ACTIVE |  |              |  |
| COEUR D'ALENE                      | --           | 13.50   | 225.00           | --      | --             | 238.5  | --                | 238.5  | INACTIVE + ACTIVE        |  |              |  |
| PRIEST LAKE                        | 20.00        | 28.00   | 71.30            | --      | --             | 119.3  | --                | 119.3  | DEAD + INACTIVE + ACTIVE |  |              |  |
| <b>CLEARWATER BASIN</b>            |              |         |                  |         |                |        |                   |        |                          |  |              |  |
| DWORSHAK                           | --           | 1452.00 | 2007.00          | --      | --             | 3459.0 | --                | 3459.0 | INACTIVE + ACTIVE        |  |              |  |
| <b>WEISER/BOISE/PAYETTE BASINS</b> |              |         |                  |         |                |        |                   |        |                          |  |              |  |
| MANN CREEK                         | 1.61         | 0.24    | 11.10            | --      | --             | 11.1   | --                | 11.1   | ACTIVE                   |  |              |  |
| CASCADE                            | --           | 50.00   | 653.20           | --      | --             | 703.2  | --                | 703.2  | INACTIVE + ACTIVE        |  |              |  |
| DEADWOOD                           | 1.50         | --      | 161.90           | --      | --             | 161.9  | --                | 161.9  | ACTIVE                   |  |              |  |
| ANDERSON RANCH                     | 29.00        | 41.00   | 423.18           | --      | --             | 464.2  | --                | 464.2  | INACTIVE + ACTIVE        |  |              |  |
| ARROWROCK                          | --           | --      | 286.60           | --      | --             | 286.6  | --                | 286.6  | ACTIVE                   |  |              |  |
| LUCKY PEAK                         | --           | 28.80   | 264.40           | 13.80   | --             | 293.2  | --                | 293.2  | INACTIVE + ACTIVE        |  |              |  |
| LAKE LOWELL                        | --           | 8.00    | 169.10           | --      | --             | 169.1  | --                | 169.1  | ACTIVE                   |  |              |  |
| <b>WOOD/LOST BASINS</b>            |              |         |                  |         |                |        |                   |        |                          |  |              |  |
| MAGIC                              | --           | --      | 191.50           | --      | --             | 191.5  | --                | 191.5  | ACTIVE                   |  |              |  |
| LITTLE WOOD                        | --           | --      | 30.00            | --      | --             | 30.0   | --                | 30.0   | ACTIVE                   |  |              |  |
| MACKAY                             | 0.13         | --      | 44.37            | --      | --             | 44.4   | --                | 44.4   | ACTIVE                   |  |              |  |
| <b>UPPER SNAKE BASIN</b>           |              |         |                  |         |                |        |                   |        |                          |  |              |  |
| HENRYS LAKE                        | --           | --      | 90.40            | --      | --             | 90.4   | --                | 90.4   | ACTIVE                   |  |              |  |
| ISLAND PARK                        | 0.40         | --      | 127.30           | 7.90    | --             | 135.2  | --                | 135.2  | ACTIVE + SURCHARGE       |  |              |  |
| GRASSY LAKE                        | --           | --      | 15.18            | --      | --             | 15.2   | --                | 15.2   | ACTIVE                   |  |              |  |
| JACKSON LAKE                       | --           | --      | 847.00           | --      | --             | 847.0  | --                | 847.0  | ACTIVE                   |  |              |  |
| PALISADES                          | 44.10        | 155.50  | 1200.00          | --      | --             | 1400.0 | --                | 1400.0 | DEAD + INACTIVE + ACTIVE |  |              |  |
| RIE                                | 4.00         | 6.00    | 80.54            | 10.00   | --             | 80.5   | --                | 80.5   | ACTIVE                   |  |              |  |
| BLACKFOOT                          | --           | --      | 348.73           | --      | --             | 348.7  | --                | 348.7  | ACTIVE                   |  |              |  |
| AMERICAN FALLS                     | --           | --      | 1672.60          | --      | --             | 1672.6 | --                | 1672.6 | ACTIVE                   |  |              |  |
| <b>SOUTHSIDE SNAKE BASINS</b>      |              |         |                  |         |                |        |                   |        |                          |  |              |  |
| OAKLEY                             | --           | --      | 77.40            | --      | --             | 77.4   | --                | 77.4   | ACTIVE                   |  |              |  |
| SALMON FALLS                       | 48.00        | --      | 182.65           | --      | --             | 182.6  | --                | 182.6  | ACTIVE                   |  |              |  |
| WILDHORSE                          | --           | --      | 71.50            | --      | --             | 71.5   | --                | 71.5   | ACTIVE                   |  |              |  |
| OWYHEE                             | 406.83       | --      | 715.00           | --      | --             | 715.0  | --                | 715.0  | ACTIVE                   |  |              |  |
| BROWNLEE                           | 0.45         | 444.00  | 975.30           | --      | --             | 1419.3 | --                | 1419.3 | INACTIVE + ACTIVE        |  |              |  |
| <b>BEAR RIVER BASIN</b>            |              |         |                  |         |                |        |                   |        |                          |  |              |  |
| WOODRUFF NARROWS                   | --           | 1.50    | 57.30            | --      | --             | 57.3   | --                | 57.3   | ACTIVE                   |  |              |  |
| WOODRUFF CREEK                     | --           | 4.00    | 4.00             | --      | --             | 4.0    | --                | 4.0    | ACTIVE                   |  |              |  |
| BEAR LAKE                          | --           | --      | 1421.00          | --      | --             | 1421.0 | --                | 1421.0 | ACTIVE                   |  |              |  |
| MONTPELIER CREEK                   | 0.21         | --      | 3.84             | --      | --             | 4.0    | --                | 4.0    | DEAD + ACTIVE            |  |              |  |



# Interpreting Streamflow Forecasts

## Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflows are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts

**Most Probable (50 Percent Chance of Exceeding) Forecast.** This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast: it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

## To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

**70 Percent Chance of Exceeding Forecast.** There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

**90 Percent Chance of Exceeding Forecast.** There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

## To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

**30 Percent Chance of Exceeding Forecast.** There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

**10 Percent Chance of Exceeding Forecast.** There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

## Using the forecasts - an example

**Using the Most Probable Forecast.** Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River newa Death between March 1 and July 31

**Using the Higher Exceedance Forecasts.** If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast

**Using the Lower Exceedance Forecasts.** If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

| UPPER HUMBOLDT RIVER BASIN          |                 |                      |              |                              |              |                   |                |        |  |
|-------------------------------------|-----------------|----------------------|--------------|------------------------------|--------------|-------------------|----------------|--------|--|
| FORECAST POINT                      | FORECAST PERIOD | STREAMFLOW FORECASTS |              |                              |              |                   |                |        |  |
|                                     |                 | DRIER                |              |                              |              | FUTURE CONDITIONS |                |        |  |
|                                     |                 | 90% (1000AF)         | 70% (1000AF) | 50% (Most Probable) (1000AF) | 30% (1000AF) | 10% (1000AF)      | 25 YR (1000AF) | WETTER |  |
| MARY'S RIVER<br>nr Death            | MAR-JUL         | 5.0                  | 20.0         | 36                           | 77           | 52                | 76             | 47     |  |
|                                     | APR-JUL         | 8.0                  | 17.0         | 31                           | 74           | 45                | 67             | 42     |  |
| LAMOILLE CREEK<br>nr Lamolle        | MAR-JUL         | 6.0                  | 16.0         | 24                           | 79           | 32                | 43             | 31     |  |
|                                     | APR-JUL         | 4.0                  | 15.0         | 22                           | 75           | 30                | 41             | 30     |  |
| NR HUMBOLDT RIVER<br>at Devils Gate | MAR-JUL         | 6.0                  | 12.0         | 43                           | 73           | 74                | 121            | 59     |  |

For more information concerning streamflow forecasting ask your local NRCS field office for a copy of "A Field Office Guide for Interpreting Streamflow Forecasts".



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*Issued by*

**Thomas A. Weber**  
**Acting Chief**  
**Natural Resources Conservation Service**  
**U.S. Department of Agriculture**

*Released by*

**Luana E. Kiger**  
**State Conservationist**  
**Natural Resources Conservation Service**  
**Boise, Idaho**

*Prepared by*

**Snow Survey Staff**  
**Philip S. Morrissey, Hydrologist**  
**Ron Abramovich, Water Supply Specialist**  
**Gini Broyles, Statistical Assistant**  
**Bill J. Patterson, Electronics Technician**  
**Jeff Graham, Electronics Technician**





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